Yvonne M. Sabine, Advisory Committee Management Officer, National Endowment for the Arts, Washington, DC 20506, or call 202/682–5433.

Dated: November 17, 1989.

Yvonne M. Sabine,

Director, Council and Panel Operations, National Endowment for the Arts.

[FR Doc. 89–27540 Filed 11–22–89; 8:45 am]

BILLING CODE 7537-01-M

NUCLEAR REGULATORY COMMISSION

[Docket No. 50–362]

Southern California Edison Co., et al.; San Onofre Nuclear Generating Station, Unit 3 Environmental Assessment and Finding of No Significant Impact

The U.S. Nuclear Regulatory Commission (the Commission) is considering issuance of an amendment to Facility Operating License No. NPF–15 issued to Southern California Edison Company, San Diego Gas and Electric Company, the City of Riverside, California and the City of Anaheim, California (the licensees), for operation of San Onofre Nuclear Generating Station, Unit 3, located in San Diego County, California.

ENVIRONMENTAL ASSESSMENT

Identification of Proposed Action

The proposed amendment would revise Technical Specification 3/4.7.6, "Snubbers." Surveillance Requirement 4.7.6.b requires a visual inspection of all snubbers on a regular basis. The interval for visual inspections is decreased as a function of the number of inoperable snubbers discovered. With no inoperable snubbers found, a maximum interval of 18 months plus or minus 25% is allowed. With one inoperable snubber per inspection period, the interval is 12 months plus or minus 25%. The proposed change would allow a one–time extension of the 12 month interval to 20 months plus or minus 25%, for the case where one inoperable snubber was found.

The Need for the Proposed Action

The proposed amendment is required to prevent unnecessary unit shutdown. Performance of these inaccessible snubber inspections would require unit shutdown due to their location in high radiation zones and the need to erect ladders or scaffolding for inspection.

Environmental Impacts of the Proposed Action

The proposed action would not involve a significant change in the probability or consequences of any accident previously evaluated, nor does it involve a new or different kind of accident. Consequently, any radiological releases resulting from an accident would not be significantly greater than previously determined. The proposed amendment does not otherwise affect routine radiological plant effluents. Therefore, the Commission concludes that there are no significant radiological environmental impacts associated with the proposed amendment. The Commission also concludes that the proposed action will not result in a significant increase in individual or cumulative occupational radiation exposure.

With regard to nonradiological impacts, the proposed amendment does not affect nonradiological plant effluents and has no other environmental impact. Therefore, the Commission concludes that there are no significant nonradiological environmental impacts associated with the proposed amendment.

The Notice of Consideration of Issuance of Amendment and Opportunity for Hearing in connection with this action was published in the **Federal Register** on September 7, 1989 (54 FR 37171). No request for hearing or petition for leave to intervene was filed following this notice.

Alternatives to the Proposed Action

Since the Commission concluded that there are no significant environmental effects that would result from the proposed action, any alternatives with equal or greater environmental impacts need not be evaluated.

The principal alternative would be to deny the requested amendment. This would not reduce environmental impacts of plant operation and would result in reduced operational flexibility.

Alternative Use of Resources

This action does not involve the use of resources not previously considered in connection with the Final Environmental Statement related to operation of San Onofre Nuclear Generating Station, Units 2 and 3, dated April 1981 and its Errata dated June 1981.

Agencies and Persons Consulted

The NRC staff has reviewed the licensees' request that supports the proposed amendment. The NRC staff did not consult other agencies or persons.

Finding of No Significant Impact

The Commission has determined not to prepare an environmental impact statement of the proposed amendment.

Based upon the foregoing environmental assessment, the Commission concludes that the proposed action will not have a significant effect on the quality of the human environment.

For further details with respect to this action, see the application for amendment dated July 26, 1989 which is available for public inspection at the Commission's Public Document Room, 2120 L Street NW., Washington, DC 20555, and at the General Library, University of California, P.O. Box 19557, Irvine, California 92713.

Dated at Rockville, Maryland, this 16 day of November 1989.

For the Nuclear Regulatory Commission.

George W. Knighton,

Director, Project Directorate V, Division of Reactor Projects—III, IV, V and Special Projects Office of Nuclear Reactor Regulation.

[FR Doc. 89–27603 Filed 11–22–89; 8:45 am]

BILLING CODE 7590-01-M

[Docket Nos. 50–269, 50–270, and 50–287]

Duke Power Co.; Issuance of Amendments to Facility Operating Licenses

The U.S. Nuclear Regulatory Commission (the Commission) has issued Amendment Nos. 177, 177, and 174 to Facility Operating License Nos. DPR–38, DPR–47, and DPR–55 issued to Duke Power Company (the licensee), which revised the Technical Specifications for operation of the Oconee Nuclear Station, Units 1, 2, and 3 (the facility) located in Oconee County, South Carolina. The amendments were effective as of the date of issuance.

The amendments revise the Technical Specifications to establish requirements for movement of a dry storage fuel transfer cask in Oconee Units 1, 2 and 3 spent fuel pools. In addition, the changes authorize storage of spent fuel at the Oconee Independent Spent Fuel Storage Installation (ISFSI). Authorizations for the ISFSI required under the provisions of 10 CFR part 72 are being handled by the Commission's Office of Nuclear Material Safety and Safeguards.

The application for the amendments complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The

Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendments.

Notice of Consideration of Issuance of Amendments and Opportunity for Hearing in connection with this action was published in the **Federal Register** on July 11, 1988 (53 FR 26122). No request for a hearing or petition for leave to intervene was filed following this notice.

The Commission has prepared an Environmental Assessment related to the action and has determined not to prepare an environmental impact statement. Based upon the environmental assessment, the Commission has concluded that the issuance of these amendments will not have a significant effect on the quality of the human environment (54 FR 43369).

For further details with respect to the action see (1) the application for amendments dated March 31, 1988, (2) Amendment Nos. 177, 177, and 174 to License Nos. DPR-38, DPR-47, and DPR-55 and (3) the Commission's related Safety Evaluation and Environmental Assessment. All of these items are available for public inspection at the Commission's Public Document Room, 2120 L Street, NW., Washington, DC, and at the Oconee County Library, 501 West South Broad Street, Walhalla, South Carolina 29691. A copy of items (2) and (3) may be obtained upon request addressed to the U.S. Nuclear Regulatory Commission, Washington, DC 20555, Attention: Director, Division of Reactor Projects I/II.

Dated at Rockville, Maryland, this 16th day of November, 1989.

For the Nuclear Regulatory Commission.

Jon B. Hopkins,

Project Manager, Project Directorate II-3, Division of Reactor Projects, Office of Nuclear Reactor Regulation.

[FR Doc. 89-27604 Filed 11-22-89; 8:45 am]

BILLING CODE 7590-01-M

[Docket No. 50-433]

University of California at Santa Barbara L-77 Research Reactor; Order Terminating Facility Operating License

By application dated September 9, 1985, as supplemented on November 20 and December 9, 1985, and March 24 and June 27, 1986, the University of California at Santa Barbara (the licensee) requested the Nuclear Regulatory Commission (the Commission) for authorization to dispose of the component parts of its L-77 Research Reactor located in Santa Barbara, California and to terminate Facility Operating License No. R-124. A Notice of "Proposed Issuance of Order Authorizing Disposition of Component Parts and Terminating Facility License," was published in the **Federal Register** o 1 October 30, 1985, (50 FR 45180). No request for a hearing or petition for leave to intevene was filed followig notice of the proposed action. By Order dated August 26, 1986, the Commission authorized dismantling of the facility and disposal of component parts as proposed in the licensee's dismantling plan.

The reactor fuel has been removed from the core and shipped to a Department of Energy facility. The reactor facility has been completely dismantled and all requirements particularly those relevant to residual radioactivity and the packaging and shipping of fuel and radioactive material, have been met. Accordingly, the Commission has found that the facility has been dismantled and decontaminated pursuant to the Commission's Order dated August 26, 1986. Satisfactory disposition has been made of the component parts and fuel in accordance with the Commission's regulations in 10 CFR chapter 1, and in a manner not inimical to the common defense and security, or to the health and safety of the public. Therefore, based on the application filed by the University of California at Santa Barbara, located in Santa Barbara, California, and pursuant to sections 104 and 161 b, i, of the Atomic Energy Act of 1954, as amended, and in 10 CFR 50.82(b), Facility Operating License No. R-124 is terminated as of the date of this Order. In accordance with 10 CFR part 51, the Commission has determined that the issuance of this termination Order will have no significant impact. The Environmental Assessment was published in the **Federal Register** on November 16, 1989 (54 FR 47743).

For further details with respect to this action see (1) the application for termination of Facility Operating License No. R-124, dated September 9, 1985 as supplemented, (2) the Commission's Safety Evaluation related to the termination of the license, (3) the Environmental Assessment, and (4) the Notice of "Proposed Issuance of Order Authorizing Disposition of Component Parts and Terminating Facility License," published in the **Federal Register** on October 30, 1985 (50 FR 45180). Each of these items is available for public inspection at the Commission's Public Document Room, 2120 L Street, NW., Washington, DC, 20555. Copies of items (2), (3) and (4) may be obtained upon request addressed to the U.S. Nuclear Regulatory Commission, Washington, DC, 20555, Attention: Director, Division of Reactor Projects—III, IV, V and Special Projects.

Dated at Rockville, Maryland, this 17th day of November 1989.

For the Nuclear Regulatory Commission.

Gary M. Holahan,

Acting Director, Division of Reactor Projects—III, IV, V and Special Projects, Office of Nuclear Reactor Regulation.

[FR Doc. 89-27605 Filed 11-22-89; 8:45 am]

BILLING CODE 7590-01-M

SECURITIES AND EXCHANGE COMMISSION

[Release No. 34-27445; File No. S7-29-89]

Automated Systems of Self-Regulatory Organizations

AGENCY: Securities and Exchange Commission.

ACTION: Policy statement.

SUMMARY: The Securities and Exchange Commission today announces publication of an Automation Review Policy in which it states its view that self-regulatory organizaiton should, on a voluntary basis, establish comprehensive planning and assessment programs to determine systems capacity and vulnerability.

DATE: Comments must be received on or before December 26, 1989.

ADDRESS: Persons wishing to submit comments should file ten copies with Jonathan G. Katz, Secretary, Securities and Exchange Commission, Mail Stop 6-9, 450 Fifth Street, NW., Washington, DC 20549. All comments should refer to File No. S7-29-89 and will be available at the Commission's Public Reference Room.

FOR FURTHER INFORMATION CONTACT: Kathryn V. Natale, Assistant Director, 202/272-2405, Christine Sakach, Branch Chief, 202/272-2857, or Tonya Noonan Herring, 202/272-2415, Division of Market Regulation, Securities and Exchange Commission, Mail Stop 5-1, 450 Fifth Street, NW., Washington, DC 20549.

SUPPLEMENTAL INFORMATION: .

I. Background

From the early 1960s through 1982, securities market trading increased steadily. Since 1982, a dramatic acceleration has occurred.[1] For

[1] Trading volume dropped in 1988 to 40.8 billion shares, however, following an all-time high of 47.8 billion shares for 1987. Annual trading volume for 1988 still was higher than in 1986, when 35.7 billion shares were traded. *See* New York Stock Exchange Fact Book (1989) at 71.

example, the volume of trading on the New York Stock Exchange ("NYSE") during only two days in October 1987, October 19 and 20 (1.2 billion shares), exceeded the annual NYSE trading volume for each year up to 1963. In addition, the aggregate NYSE trading volume for only five days in October 1987, October 16–22 (2.4 billion shares), was equivalent to 21.3% of the NYSE's annual volume for 1980 and 17.4% of its annual volume.[2] The over-the-counter ("OTC") and options markets also have experienced tremendous volume growth during the past decade.[3]

Institutional investors and broker-dealers increasingly have employed trading strategies that involve the purchase or sale of a large number of stocks simultaneously ("basket trading").[4] These trading strategies have not only contributed to the increase in trading volume noted above, but also "the velocity and concentration of stock trading." [5] The events of Friday, October 13, 1989, when the Dow Jones Industrial Average ("DJIA") fell 165 points in little more than an hour, and on Tuesday, October 24, 1989, when the DJIA fell more than 60 points in 30 minutes, demonstrate that concentrated surges of trading volume can occur. During the last hour of trading on October 13, 108,170,000 shares were traded on the NYSE, for a daily total of 251,170,000 shares. On Monday, October 16, the DJIA fell more than 63 points in the first 40 minutes of trading. More than 141 million shares were traded in the first hour, and more tran 225 million shares were traded over the first two hours. The total NYSE volume for the day was 416,493,810 shares, the fourth highest in NYSE history.

In order to accommodate this growth in trading activity and the volume surges associated with basket trading strategies, the self-regulatory organizations ("SROs") have replaced manually intensive order routing and execution procedures with automated systems that permit electronic routing and execution of certain orders.[6] These automated systems, which generally handle only small orders, successfully have increased the capacity of U.S. securities markets and have improved the efficiency and timeliness with which transactions are executed.[7] Indeed, the SROs have exercised foresight in anticipating future volume levels and designing and continually monitoring and enhancing automated systems to accommodate anticipated volume levels.

The increase in trading volume noted above also has had a ripple effect on the degree of automation of other SRO functions auxiliary to order execution. Specifically, the SROs have developed and continue to enhance automated systems for the dissemination of transaction and quotation information [8] and the comparison of trades prior to settlement.[9] These systems, in

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[2] *Id.*

[3] For example, the average daily share volume on NASDAQ, the primary OTC market, has grown from 11 million shares per day in 1978 to 122.8 million shares per day in 1988, a 1,116% increase. *See* NASDAQ Fact Book (1988) at 7. In the standardized options market, contract volume for 1987 and 1988, in comparison to 1978, was, respectively, 497% and 319% larger. *See* SEC Monthly Statistical Review, April 1981 at 5 and February 1989 at 4.

[4] *See* Division of Market Regulation, *The October 1987 Market Break* (Feb. 1988) ch. 1, at 1–7 for a description of some of the basic trading strategies that employ basket trading ("Market Break Study").

[5] *Id.* at 3–17.

[6] Prior to the automation of the markets, orders to purchase or sell exchange-listed securities generally were processed in the following manner. A customer would place an order with his or her registered representative at a branch office of a broker-dealer who, in turn, would telephone the order to the broker-dealer's order desk. The order desk would then route the order by telephone or pneumatic tube to the firm's trading booth on the exchange floor and the firm's floor trader would take the order to the applicable specialist post for execution. If the order was not executable (*e.g.*, a non-marketable limit order), then it was given to the specialist's and transcribed by hand onto the specialist's book for future execution. *See* Special Study of Securities Markets, Report of the Securities and Exchange Commission (1963), *reprinted in* H.R. Doc. No. 95, 88th Cong., 1st Sess. (1963), Pt. 2 at 41–42 ("Special Study Report"), and Market Break Study, *supra* note 4, ch. 7 at 16. Orders for OTC securities were handled in a manner similar to exchange-listed securities except that once they reached the broker-dealer's trading desk, they could be filled out of the firm's inventory (principal transactions) or through telephone negotiations with other broker-dealers (agency transactions). *See* Special Study Report, Pt. 2 at 552.

[7] The NYSE and the American Stock Exchange ("Amex") have developed automatic order routing systems, termed DOT and PER, respectively, that permit orders to be routed directly from member firm branch offices to the applicable specialist post, thereby by-passing the member firm's trading desk and floor broker. After orders are executed, DOT and PER generate and transmit execution reports to the member firms and other automated systems that disseminate market information. For a more complete description of these systems and their enhancements, *see* Market Break Study, *supra* note 4, ch. 7 at 16–21 and 24–25. The Boston, Midwest, Pacific ("PSE"), and Philadelphia ("Phlx") Stock Exchanges have developed systems called BEACON, MAX, SCOREX, and PACE, respectively, that automatically route and execute small orders (generally up to 1,099 shares). These four systems bassically operate in the same manner. After an order is routed to the system, it is priced based on the best bid or offer displayed on the Intermarket Trading System ("ITS") at the time the order was received by the system, and then routed to the applicable specialist post. The order is then displayed on a video terminal at the post for 15 seconds to permit the specialist and/or trading crowd to improve upon the assigned ITS execution price. If no floor trader intervenes within the 15 seconds, the order is automatically executed against the specialist at the predetermined price. Under the PACE system, however, orders are executed once priced and are not displayed for price improvement. The four systems also transmit transaction reports to members and market data vendors. For a more complete description of these systems, *see* Market Break Study, *supra* note 4, ch. 7 at 26–28 and Adkins & Ruder, Appendix to "Automation of Information and Trading in the U.S. Securities Market" at 6–13 ("Annenberg Forum Paper") (paper presented by Chairman Ruder to the Annenberg Washington Program's 1989 Forum, "Technology and Financial Markets," on February 27, 1989). *See also* "Automation in U.S. and Foreign Securities Markets: A Report by the Division of Market Regulation of the United States Securities and Exchange Commission" (September 1989).

The Amex and the Chicago Board Options Exchange ("CBOE") have developed automated order execution systems, termed RAES and Auto-Ex, respectively, for the execution of small public customer option orders. The Phlx has developed an automated order routing system for small customer options orders called Autom. In the OTC market, the national Association of Securities Dealers ("NASD") has developed a system called the Small Order Execution System ("SOES") that permits the automatic execution of small customer orders. For a more complete description of these systems, *see* Market Break study, *supra* note 4, ch. 8 at 8–10 and ch. 9 at 12–13 and Appendix to Annenberg Forum Paper, *supra* at 14–17 and 20–22.

Finally, the Cincinnati Stock Exchange ("CSE") has established a fully automated electronic trading system, National Securities Trading System ("NSTS"), that permits CSE members, without having to maintain a physical presence on the CSE floor, to enter agency or principal orders into the system through remote terminals. Once entered, orders are stored, queued, and executed by the system according to price and time priorities. Public agency orders, however, are granted priority over other orders at the same price, regardless of time of entry. The screens for each security traded in the system are updated instantaneously to reflet the entry, revision, cancellation and execution of orders.

[8] Through a coordinated and cooperative effort, SROs developed the Consolidated Transaction Reporting System and the Consolidated Quotation Reporting System in 1974 and 1978, respectively. These systems provide for the electronic collection and dissemination of real-time trade and quotation information (*i.e.*, immediately or soon after the event, rather than at the end of the trading day) in NYSE and Amex listed securities, as well as certain regional securities. Under these plans, quotation and trade reports are submitted by particular markets electronically to a central processor, the Securities Information Automation Corporation ("SIAC"). SIAC, in turn, processes this information and broadcasts it to financial information vendors for dissemination to investors. For options, transaction and quotation information is collected and disseminated pursuant to a plan administered by the Options Price Reporting Authority ("OPRA"). As with equity securities, each options exchange electronically collects and transmits to OPRA last sale information and bids and offers for the options that it trades. OPRA, in turn, processes this information and disseminates it to vendors. In the OTC market, NASDAQ, Inc., a subsidiary of the NASD, operates a system that collects quotations that are electronically submitted by market makers from computer terminals in their offices and then disseminates them to vendors and other market makers. For the largest and most actively traded NASDAQ companies, which are known as NASDAQ/NMS securities, the NASD provides real-time last sale reports.

[9] Trade comparison, the matching of the buy and sell sides of a securities transaction, is the process after a trade has been executed by which broker-dealers confirm with each other the trade's terms (*e.g.*, security, number of units, and price) and the

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conjunction with automated trading systems, allow investors to receive and act on market information in a timely fashion and ensure that trades are settled in an accurate and efficient manner. The Commission commends the SROs for their efforts to develop and constantly improve these systems.

While the SROs' development of execution, market information and comparison systems substantially has improved the efficiency of their markets, the October 1987 Market Break exposed the continuing vulnerability of these systems to operational problems during extreme high volume periods. The following problems were among those encountered by automated trading systems during the October 1987 Market Break. First, inadequate computer capacity caused queues of unprocessed orders to develop that, in turn, resulted in significant delays in order execution.[10] Second, the SROs did not have adequate contingency plans to free-up or create additional computer-file space to accommodate the increase in order traffic.[11] Third, delays were experienced by some SROs in the transmission of transaction reports to both member firms and market information dissemination systems. Fourth, delays in order processing caused the expiration of ITS commitments to trade before they reached the applicable specialist post. Finally, due in large part to capacity strains, some SROs lowered the order-eligibility size of their systems or asked member firms not to route orders through their systems. The disengagement of these systems, in turn, hampered order execution throughout the market as a whole, because orders that would otherwise have been processed electronically were required to be processed manually.[12]

The market decline on October 13, 1989, demonstrated that the systems worked substantially better than two years ago, but there were still problems with some systems. A few of the exchanges again experienced queuing problems, while some exchanges had other systems problems that may or may not have been related to the volume surge during that volatile period.[13]

The NASD experienced problems with SOES. On October 16, trading on SOES totaled 13,483 transactions and 4.7 million shares. A variety of factors, such as mandatory participation in SOES, the penalties for market-maker withdrawals, and the efforts of market-makers to unlock and uncross their markets, resulted in an unprecedented flow of market-maker quotation changes to NASDAQ. As a preliminary matter, it appears that this may have produced a communications delay between the computers that operate the basic NASDAQ System and the computers that operate SOES, causing orders to be executed based on delayed quotations.[14]

The effect of the earthquake in Northern California on the PSE during the week of October 16–20, 1989, demonstrates the vulnerability of the securities markets to external circumstances. The earthquake and the resultant loss of power caused the PSE in San Francisco to substantially scale down operations until October 23, 1989.[15] To ensure that trading in PSE options could continue, the Commission permitted trading in PSE options on the American, New York, and Philadelphia Stock Exchanges and the Chicago Board Options Exchange, on October 19–20.

In addition, on November 10, 1989, the NYSE delayed opening until 10:30 a.m. due to an electrical fire in the building that houses SIAC, causing the NYSE to rely on its back-up generators. The options and futures markets also halted trading during that period.

II. Automation Review Policy

Because of the impact systems failures have on public investors, broker-dealer risk exposure, and market efficiency, the Commission believes it is appropriate for the SROs to take certain steps to ensure that their automated systems [16] have the capacity to

existence of a contract. Comparison is the first of three basic steps in processing a securities transaction, the other two being clearance and settlement. For a more complete discussion of trade comparison, see Market Break Study, *supra* note 4., ch. 10 at 1–5.

The NASD has developed a system, called Automated Confirmation Transaction ("ACT"), that facilitates the automated clearing of pre-negotiated trades. *See* Securities Exchange Act Release No. 26991 (June 29, 1989), 54 FR 28531. ACT is a facility for same-day comparison of inter-dealer, over-the-counter equity trades. Participants must enter trade reports within specific time frames, which are then compared and submitted to clearing as matched, "locked-in" trades. The NASD also has introduced a system called the Order Confirmation Transaction ("OCT") System. *See* Securities Exchange Act Release No. 25263 (January 11, 1988), 53 FR 1430. OCT permits negotiation through screen terminals of trades of all sizes between market makers, and brokers and the automated, locked-in comparison of those trades once agreed upon. The system in effect replaces telephone negotiation with negotiation through computer links and screen. If an order is accepted, the system generates locked-in comparison reports, as well as publicly-disseminated trade reports.

The NYSE and the National Securities Clearing Corporation ("NSCC") recently have developed an automated comparison system called the Overnight Comparison System ("OCS"). This system, which is being implemented in stages, consists of two subsystems, called the Correction System and the Comparison Redesign System. The Correction System computerizes the NYSE's processing of uncompared trades. The Exchange's Correction System began operation on April 27, 1989, and by July 18, 1989, all uncompared or "Questioned Trades" were being resolved through the System. *See* Securities Exchange Act Release No. 27096 (August 3, 1989), 54 FR 33299. The Comparison Redesign System permits all transactions to be compared or closed out by the close of the business day following trade date, T+1, as required by new NYSE Rule 130.

[10] In some cases, the queuing problems adversely affected the priority of orders placed in the system. For instance, in one system, once an order file was full, incoming orders would replace, or "wrap-over," orders previously placed in the system.

[11] While some of the markets, such as the MSE, were able to make certain adjustments in their systems to continue operations, two markets, the PSE and the Phlx, asked members to refrain from using their automated systems for several periods of time during the week of October 29, 1987, because the systems were overloaded. *See* Market Break Study, *supra* note 4, ch. 7 at 15–41.

[12] The OTC and options markets' automated execution systems, however, did not experience operational strains during the market break, in part because order flow was diverted from these systems for reasons unrelated to the operation of the computer facilities themselves. For a more thorough discussion of the problems encountered by these markets, *see* Market Break Study, *supra* note 4, at chs. 7–9. With regard to trade comparison systems, the number of uncompared trades on all securities markets increased substantially, thereby placing great stress on the clearance and settlement process. This was not, however, a systems capacity problem, except for the NYSE's odd-lot system, the Automated Pricing and Reporting Service ("APARS"). APARS reports were delayed significantly on October 20 and 21, 1987, and the system as a whole experienced problems on October 20 when no member odd-lot trades were reported to NSCC (however, those trades were reported the next day and were entered into NSCC's clearance systems without further effect on timely settlements). APARS also experienced capacity overload problems on October 20, which caused a computer failure and, in switching over to a backup computer, loss of approximately 8,000 to 9,000 orders. The lost trades were re-established through the NYSE's trade correction process. *See id.* ch. 10 at 5–12. In December 1987, the Commission approved a NYSE rule change that modified pricing procedures for standard odd-lot market orders. The APARS system was eliminated, and standard odd-lots now are routed through the Exchange's Limit Order File ("LMT"). *See* Securities Exchange Act Release No. 25177 (December 7, 1987), 54 FR 47472. Finally, there were delays at several of the regional exchanges in transmitting trade information to the Securities Industry Automation Corporation ("SIAC"). See *id.* ch. 7 at 3–7.

[13] Not surprisingly, those exchanges that had conducted prior testing of their automated systems seemed to fare better than those that had not.

[14] Apparently, the computer receiving quote updates was so fast that the computer could not read and send the quotes to the computer which processes executions. Therefore, the computer or the link was shut off for approximately 20 minutes from 9:38 to 10:04 am.

[15] The equities floor in San Francisco remained open on a limited basis with orders being routed to and executed in Los Angeles, while some workers at the PSE's main floor in San Francisco executed orders by flashlight. W.S.J. Oct. 19, 1989 at C14.

[16] The Commission believes that the Policy Statement is consistent with and in furtherance of Sections 2 and 11A(a)(1) (B) and (C) of the

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accommodate current and reasonably anticipated future trading volume levels adequately and to respond to localized emergency conditions. For this reason, the Commission today announces its Automation Review Policy ("Policy").[17] It is the Commission's belief that the SROs should establish comprehensive planning and assessment programs to test systems capacity and vulnerability. These programs should have three primary objectives. First, the Commission believes the SROs should formally establish current and future capacity estimates ("Capacity Estimates") for their automated order routing and execution, market information, and trade comparison systems. Second, the SROs should conduct capacity stress tests ("Stress Tests"), periodically, to determine the behavior of automated systems under a variety of simulated conditions.[18] Third, we believe that the SROs should contract with independent reviewers to assess annually whether these systems can perform adequately at their estimated current and future estimated capacity levels and whether these systems have adequate protection against physical threat.[19]

III. Discussion

The Commission believes this Policy Statement is consistent with and in furtherance of a Congressional finding that one of the two paramount objectives of a national market system is "the maintenance of stable and orderly markets with maximum capacity for absorbing trading imbalances without undue price movements."[20] In light of the operational difficulties experienced by SRO automated systems during the October 1987 Market Break, predicted future capacity requirements based on past increases in trading volume, the need to maintain accurate trade and quote information, and the degree to which computer automation has become, and is likely to increase as, an integral part of securities trading, the Commission believes that the SROs should take certain steps to ensure that their automated systems have adequate capacity to process reasonably predictable volume levels.[21]

The Commission's announcement of these guidelines does not mean the Commission believes SRO automated systems are inadequate or that enhancements made to these systems since the October 1987 Market Break have not been sufficient or beneficial. On the contrary, the Commission believes the SROs have made great strides since October 1987 to increase

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Securities Exchange Act of 1934. Specifically, Section 2 states in pertinent part that "transactions in securities as commonly conducted upon securities exchanges and over-the-counter markets are affected with a national public interest which makes it necessary to provide for regulation and control of such transactions and of practices and matters related thereto, . . . to require appropriate reports, to remove impediments to and perfect the mechanisms of a national market system for securities and a national system for the clearance and settlement of securities transactions and the safeguarding of securities and funds related thereto, and to impose requirements necessary to make such regulation and control reasonably complete and effective, . . ." In Section 11A(a)(1), Congress found that: (1) "securities markets are an important national asset which must be preserved and strengthened"; (2) "new data processing and communications techniques create the opportunity for more efficient and effective market operations"; and (3) "it is in the public interest and appropriate for the protection of investors and the maintenance of fair and orderly markets to assure . . . [the] economically efficient execution of securities transactions."

[17] The Commission notes that compliance with this policy statement by the SROs is voluntary. The Commission's examination program, however, will review carefuly the preparedness of SRO systems to handle substantial volume spikes. If the Commission becomes concerned over the level of voluntary compliance with this Policy Statement, it may propose a rule that would place an affirmative obligation on the SROs to obtain a periodic review of their automated systems.

While this Policy Statement does not directly discuss the obligations of broker dealers, proprietary trading systems, service bureaus, and vendors, the Commission believes all should engage in systems testing, and this Policy Statement should be used as a guideline. The Commission staff will review these entities' systems preparedness in the coming months and, if appropriate, the Commission may consider the issuance of a second Policy Statement thereafter.

[18] We note that, in fact, the SROs already have begun a testing program. For example, on Saturday, April 30, 1988, the NYSE and SIAC tested the key computer systems that experienced difficulties in October 1987. During the test the participants replayed actual data from October 19, 1987, compressed into five hours (8:00 a.m. to 1:00 p.m.) to achieve the peak volumes required to stress the systems. Beginning at 8:00 a.m., incoming market orders were accepted into the Opening Automatic Reporting System ("OARS") and limit orders were sent to display books and card printers. At 9:30 a.m., specialist personnel opened the "market" and simulated normal (but intense) trading activity by reporting executions and entering additional order from the floor.

The NYSE reported that the test showed that the improvements made since October 19 (for example, expanding the trading floor, adding input/output devices, greatly increasing the use of display books, and upgrading hardware and software) have resulted in higher capacity, increased flexibility and better performance. The NYSE's systems processed a traffic flow comparable to that of October 19, 1987, in much less time and at much higher message rates. *See* Report from NYSE and SIAC, 600-Million-Share-Day Volume and Stress Test on April 30, 1988 (May 23, 1988).

On Saturday, November 12, 1988, the NYSE and SIAC, in conjunction with the member-firm community and the financial service vendors, tested the Exchange's switching and order-processing systems. The test, according to the report of the NYSE and SIAC, met its five objectives. Specifically, it:

1. proved that the Common Message Switch (CMS) interface to member firms can accommodate message rates up to those expected on a 600-million-share day;

2. demonstrated that member firms can deliver orders to and receive reports from the NYSE at 600-million-share-day message rates;

3. identified potential weak lines when many systems were stressed at rates in excess of 600-million-share-day levels; collected extensive information about systems' behavior under heavy loads;

4. used the market-data systems to distribute trade and quote data to financial-service vendors in preparation for the 1989 test; and

5. helped NYSE/SIAC identify requirements for system tools and procedures to conduct similar tests routinely.

Report from NYSE and SIAC, 600-Million-Share-Day Member-Firm Interface Test on November 12, 1988 (December 16, 1988).

The 1989 tests focused on the National Market System ("NMS"), and consisted of three phases. On Saturday, May 13, 1989, NYSE and SIAC, with the cooperation of other market centers, conducted a vendor test. The NYSE and SIAC reported that the May test successfully transmitted test market data, previously recorded, from all market-center sources to the financial-service vendors and that the test met its two objectives by:

1. distributing trade and quote data to the vendor community at 600-million-share-day rates to test vendors' ability to receive and process at these rates; and

2. identifying the SIAC and vendor tools needed to conduct similar tests routinely.

Report from NYSE and SIAC, 600-Million-Share-Day Financial Service Vendor Test on May 13, 1989 (June 9, 1989).

On June 24, 1989, a stress test was conducted to examine the Consolidated Trading and Consolidated Quote Systems. According to the report issued by the NYSE and SIAC on August 4, 1989, the test met its two objectives by:

1. demonstrating that the Consolidated Trading System and the Consolidated Quote System can handle 600-million-share-day message rates when all participants are active; and

2. identifying the SIAC and participant tools needed to conduct similar tests routinely.

At 600-million-share-day rates, all SIAC operations ran smoothly, with minimal queuing. Report from NYSE and SIAC, 600-Million-Share-Day Consolidated Trade and Quote Systems Test on June 24, 1989 (August 4, 1989).

A third stress test conducted in September 1989, tested ITS. Reports of this third test are not yet available, although preliminary results indicated that the systems accommodated simulated volume levels that exceed those of the October 1987 Market Break.

[19] These objectives are discussed in greater detail in Section III, *infra*.

[20] Senate Comm. on Banking, Housing & Urban Affairs, *Report to Accompany S. 249*, S. Rep. No. 94-75, 94th Cong., 1st Sess. 7, *reprinted in* 1975 U.S. Code Cong. & Ad. News 179. *See also* § 11A(a)(1)(B) and (C), 15 U.S.C. 78f (1982).

[21] The term "automated systems" or "automated trading systems", as used in this release, refers collectively to computer systems for listed and OTC equities, as well as options, that electronically route orders to applicable market makers and systems that electronically route and execute orders, including the data networks that feed the systems. The term "automated systems" also encompasses systems that disseminate transaction and quotation information and conduct trade comparisons prior to settlement, including the associated communication networks. Moreover, because lack of adequate communications capacity can be as damaging to the overall performance of an exchange during peak periods as poorly designed order processing, capacity tests of the data networks that feed the computer systems also should be conducted.

the capacity of their systems and the Commission is encouraged that planned enhancements to these systems will further strengthen the integrity of the securities markets.[22] The Commission does believe, however, that a periodic review and test of each SRO's systems capacity will help indentify potential weak points and reduce the risk of serious system failures. The Commission's Policy reflects its desire to ensure that market movements are the result of market participants' changing expectations about the direction of the market for a particular security, or group of securities, and not the result of investor confusion or panic resulting from operational failures or delays in SRO automated trading or market information systems.

The Commission believes that each SRO should formulate current Capacity Estimates for the maximum number of transactions its order handling and execution systems can process daily without unreasonable delays, the maximum number of transactions its system can handle over a fifteen-minute surge in volume, and future capacity requirements based on projected volume figures.[23] Similarly, the Commission believes that the SROs should formulate daily and fifteen-minute Capacity Estimates for their automated market information and trade comparison systems, along with future Capacity Estimates. In addition, the SROs should formulate contingency protocols ("Contingency Protocols")[24] designed to provide back-up facilities in the event of on-line system failures and additional processing capacity during high volume periods.[25] Furthermore, the SROs should prepare an evaluation of any implementation of system enhancements needed to accommodate future trading levels. The SROs should consider preparing planning statements anticipating such enhancements ("Planning Statements").

The SROs also should institute procedures to continue periodic Stress Tests of all of their automated systems and report the results of those tests to the Division. The SROs should use standards generally set by the computer industry to develop, and evaluate the results of, Stress Tests and should specify in their report the specific standards they are applying. In this connection, the Commission requests comments on whether the Commission should in the future mandate specific standards, and if so, what those standards should be.

The Commission also requests that the SROs periodically assess the vulnerability of their automated systems to external and internal threat ("Vulnerability Studies"). The Commission believes that such studies should address the susceptibility of automated systems to computer viruses, unauthorized use, computer vandalism, and failures as a result of catastrophic events (*i.e.*, fire, power outages, earthquakes). In addition, the Commission requests that the SROs promptly notify the Division of any instances in which unauthorized persons gained or attempted to gain access to their systems, and follow-up with a written report of the problem, its problem, its cause, and the steps taken to prevent a recurrence.

The Commission believes that review of SRO actions relating to automation systems will be important in monitoring SRO performance. Accordingly, the Commission, pursuant to its oversight authority, expects to request that the SROs provide to the Division Capacity Estimates, Planning Statements, Stress Tests, Contingency Protocols, Vulnerability Studies, and reports of any incidents of unauthorized access which they have prepared.

Finally, as part of a capacity planning and assessment program, SRO automated systems also should receive, periodically, a comprehensive, critical, and independent review. The Capacity Estimates, Planning Statements, Stress Tests, Contingency Protocols, and Vulnerability Studies previously produced by the SROs, along with the actual automated systems themselves, should form the basis on which independent reviewers will be able to critique automated systems.[26] The Commission believes that each SRO should have its automated systems reviewed annually by an independent reviewer starting in 1991.[27] Pursuant to its oversight examination authority, the Commission expects to request the SROs to provide the Commission copies of the reports, which have been prepared, describing the findings of the independent reviewer.[28] Areas which appear appropriate for independent review include: (1) Whether current and future SRO Capacity Estimates are accurate; (2) whether the automated systems can perform at estimated capacity levels; (3) whether planned system enhancements realistically will accommodate future capacity requirements; (4) whether Contingency Protocols are well designed and likely to be effective; (5) whether SRO automated systems are vulnerable to systems integrity failures; and (6) recommendations to address deficiencies found in areas (1)–(5) above.

Dated: November 16, 1989.

By the Commission.

Jonathan G. Katz,

Secretary.

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Self-Regulatory Organizations; Midwest Clearing Corp.; Order Approving Proposed Rule Change Relating to the Limitation or Elimination of a Director's Liability in Certain Instances

November 16, 1989.

On April 11, 1989, the Midwest Clearing Corporation ("MCC") filed a proposed rule change (SR–MCC–89–02) under Section 19(b)(1) of the Securities Exchange Act of 1934 ("Act"),[1] and Rule 19b–4 thereunder.[2] The proposal would limit the personal liability of MCC directors in certain instances. The Commission published notice of the proposal in the **Federal Register** on June

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[22] *See* Letter from David S. Ruder, Chairman, SEC, to the Honorable William Proxmire, Chairman, Committee on Banking, Housing, and Urban Affairs dated March 4, 1988 (discussing contingency planning and coordination and operational capacity enhancements).

[23] Future capacity estimates also should take into consideration increased message traffic resulting from planned modifications to existing systems or the introduction of new systems. For example, if the NYSE were to expand the instances where DOT automatically would execute orders or if the CBOE were to increase the order eligibility size for RAES, then they would have to incorporate the anticipated increase in order flow into their capacity estimates.

[24] A contingency protocol is a plan to deal with extreme market conditions which potentially could overburden automated order routing and execution systems.

[25] The Commission understands that many of the SROs already have produced similar capacity estimates, planning statements, and protocols that they will be able to use them to comply with this Policy.

[26] In the future, the Commission may suggest expansion of this Policy to other SRO computer-driven support systems for, among other things, clearance and settlement, and market surveillance, if the Commission finds it necessary to ensure the maintenance of fair and orderly markets.

[27] In view of the voluntary nature of this Policy, the Commission has not mandated specific requirements for determining whether a reviewer is independent. The Commission, however, requests comments on whether it should mandate such standards in the future, and if so, what those standards should be.

[28] In addition, the Commission requests that each SRO include a general discussion of its automation review in its Exchange Act Form 1–A submitted annually to the Commission.

[1] 15 U.S.C. 78s(b) (1982).

[2] 17 CFR 240.19b–4 (1989).